

EXHIBIT

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Resume of Michael Ian Shamos

ACADEMIC

Education
Foreign Languages
Honors
Editorships
Publications

LEGAL

Experience
Bar Admissions
Expert Witness
Legislative Testimony
Arbitration

ELECTRONIC VOTING

Experience
Legislative Testimony
Publications

BUSINESS

Experience
Consulting
Directorships

PERSONAL DATA

Contact Information

PUBLICATIONS

Science
Digital Libraries
Electronic Voting
Billiards
In Preparation

INVITED TALKS

Electronic Commerce
Science and Law
Electronic Voting

MISCELLANEOUS

Personal Data
Contact Information

Education

A.B. (1968) Princeton University (Physics). Thesis: "An Absorber Theory of Gravitational Radiation". Advisor: John A. Wheeler.

M.A. (1970) Vassar College (Physics). Thesis: "An Absorber Theory of Acoustical Radiation." Advisor: Morton A. Tavel.

M.S. (1972) American University (Technology of Management).

M.S. (1973) Yale University (Computer Science).

M.Phil. (1974) Yale University (Computer Science).

Ph.D. (1978) Yale University (Computer Science). Thesis: "Computational Geometry". Thesis committee: David Dobkin, Martin H. Schultz, Stanley C. Eisenstat.

J.D. (1981) Duquesne University, cum laude.

Foreign Languages

French, Russian (good reading and technical translation skills, fair conversational ability).

Academic Experience

Distinguished Career Professor, Institute for Software Research and Language Technologies Institute, School of Computer Science, Carnegie Mellon University (2001-). Principal Systems Scientist (1998-2001). Principal Lecturer (2002-2003). Teaching Professor (2003-). Faculty, Tepper School of Business, Carnegie Mellon University (1999-2004).

Co-Director, Carnegie Mellon Institute for eCommerce (1998-). Vice-Chair, University Research Council (2000-2002), Director, eBusiness Technology degree program (2003-).

Director, Universal Library, Carnegie Mellon University (1998-).

Visiting Professor, Department of Electrical and Electronic Engineering, The University of Hong Kong (2001-).

Adjunct Faculty, Carnegie Mellon University, Department of Computer Science (1981-1998).
Formerly Assistant Professor, Carnegie Mellon University, Departments of Computer Science and Mathematics (1975-81), Dept. of Statistics (1978-81).

Recent courses taught (Carnegie Mellon):

Algorithm Design and Analysis 15-451 (Comp. Sci.)
Intellectual Capital and its Protection 45-886 (MBA)
Ecommerce Technology 20-751 (MSEC program)
Electronic Payment Systems 20-753 (MSEC program), 96-774 (MSIT program)
Ecommerce Law and Regulation 46-840 (MSEC program)
Electronic Voting 17-803
Ubiquitous Computing, 96-761

Honors and Awards

Fellow, Society of the Sigma Xi (1974-83).

IBM Fellowship, Yale University (1974-75).

SIAM National Lecturer (1977-78).

Distinguished Lecturer (computer science), University of Rochester (1978); McGill University (1979).

Duquesne University Law Review (1980-81).

Black & White Scotch Achiever's Award (first annual, 1991, for contributions to bagpipe musicography).

Industry Service Award of the Billiard and Bowling Institute of America, 1996 (for contributions to billiard history).

Billiard Worldcup Association official referee (2001-)

Editorships

Editor-in-Chief, Journal of Privacy Technology (2003- 2006).

Member of Editorial Board, *Electronic Commerce Research Journal* (2000-).

Member of Editorial Board, *Pittsburgh Journal of*

Technology, Law and Policy (1999-).

Dr. Shamos has reviewed scientific papers for Communications of the ACM, Mathematical Reviews, IEEE Computer, IEEE Transactions on Computers, Information Processing Letters, Journal of the ACM and the Journal of Computational Physics.

Contributing Editor, Billiards Digest magazine (1990-).

Patents

Co-inventor with K. Srinivasan, U.S. Patent 7,330,839, "Method and System for Dynamic Pricing," issued February 12, 2008.

Co-inventor with K. Srinivasan, U.S. Patent 7,421,278, "Method and Apparatus for Time-Aware and Location-Aware Marketing," issued September 2, 2008.

Legal Experience

Special Counsel, Reed Smith LLP (2000-2003), electronic commerce law.

Shareholder, The Webb Law Firm (1996-2000), intellectual property law. Associate (1990-95).

Private practice of law (1987-90), intellectual property

Associate, law firm of Buchanan, Ingersoll, P. C. (1985-87), Emerging Companies Department.

General Counsel, Carnegie Group, Inc. (1983-85), artificial intelligence company.

Private practice of law (1981-83), computer law.

Bar Admissions

Supreme Court of Pennsylvania (1981-).

United States District Court for the Western District of Pennsylvania (1981-).

United States Patent and Trademark Office (1981-).

United States Tax Court (1982-).

United States Court of Appeals for the Armed Forces

(1982-).

United States Court of Appeals for the Third Circuit
(1982-).

United States Supreme Court (1985-).

United States Court of Appeals for the Federal Circuit
(1985-).

Expert Witness

Dr. Shamos serves as an expert witness in computer software and electronic voting cases. He has participated in the following:

C.W. Communications, Inc. v. International Research Service, Inc., Civil Action No. 84-890, (W.D. Pa. 1984), aff'd. Case No. 88-3331 (3d Cir., Oct. 31, 1988). Dr. Shamos testified for plaintiff publisher as to the fame of its "Computerworld" trademark. Result: permanent injunction against defendant. Judge McCune's Memorandum and Order states. "We accept the conclusion drawn by Dr. Shamos."

E.F. Hutton, Inc. v. Gipson (W.D. Pa. 1985). Dr. Testified for defendant-counterclaimant physician as to fraud in the inducement by a computer hardware supplier. Plaintiff had provided capital financing for the purchase. Result: defendant was awarded compensatory damages + \$250,000 punitive damages.

In re Comprehensive Business Systems, 119 B.R. 573 (S.D. Ohio 1990). Testified for a secured creditor in a bankruptcy case in which the creditor sought to obtain software still in development for which it had advanced over \$2 million in funding. Dr. Shamos opined as to the value of the incomplete software. Result: the creditor was able to purchase the software from the Trustee for \$67,500. The Court referred in its opinion to "the testimony of the eminent and impressive Dr. Shamos."

Levinson Steel Co. v. American Software, Inc. et al., Civil Action No. 96-282, W.D. Pa. (1996). Testified for plaintiff concerning bad faith estimates of computer processing capacity resulting in delivery of an inadequate system. Result: settlement in favor of plaintiff in an undisclosed amount. Contact: Reed Smith LLP, 435 Sixth Ave., Pittsburgh, PA 15219.

ASE Limited v. INCO Alloys International, Inc., Civil Action No. 98-1266, (W.D. Pa. 1998). Testified for defendant concerning breach of computer services contract by declaratory judgment plaintiff. Result: determination that defendant was free to seek services from a different vendor.

Twentieth Century Fox Film Corp. v. iCraveTV., 53 U.S.P.Q. 2d 1831 (W.D. Pa. 2000). Testified for Plaintiffs concerning Internet technology used to stream video from U.S. TV stations through web sites in Canada. Result: TRO and preliminary injunction issued against defendants prohibiting continued infringement in the U.S. Contact: Gregory Jordan, Esq., Reed Smith LLP, 435 Sixth Ave., Pittsburgh, PA 15219

Invited testimony before the British House of Lords, Subcommittee B of the European Union Committee, April 20, 2000. Subject: European regulation of eCommerce. View testimony.

Universal Studios, Inc. v. Reimerdes, 111 F. Supp. 2d 294 (S.D.N.Y. 2000), *aff'd* 273 F.3d 429 (2d Cir. 2001). Served as an expert for plaintiff movie studios concerning accused software for decrypting DVDs in the first case interpreting the Digital Millennium Copyright Act. Result: permanent injunction issued in favor of plaintiffs on August 17, 2000. Contact: William Hart, Esq., Proskauer Rose LLP. View testimony. View opinion. View appellate opinion.

MercExchange, L.L.C. v. eBay, Inc. et al., Case No. 2:01-CV-736 (E.D. Va. 2001). Served as an expert for defendant eBay in an infringement case concerning U.S. Patent 6,202,051 for Internet auctions. Following Dr. Shamos' reports, Defendants obtained a summary judgment of noninfringement of the subject patent. On the other patents, the case went to the U.S. Supreme Court, which ruled that injunctions are not automatic in patent cases. Contact: Tim Teter, Esq., Cooley Godward Kronish LLP.

Powerquest Corp. v. Quarterdeck Corp. et al., Case No. 2:97-CV-0783 (D. Utah 1997). Served as an expert for plaintiff PowerQuest in an infringement case concerning U. S. Patents 5,675,769 and 5,706,472 for a method of resizing hard disk partitions. Dr. Shamos testified at the Markman hearing. Case settled when one of the defendants

acquired plaintiff. Contact: Gregg Anderson, Esq., Knobbe Martens, Olson & Bear, LLP.

Sightsound.Com Inc. v. N2K Inc. et al., C.A. 98-118 (W.D. Pa. 1998). Served as an expert for defendants, including a subsidiary of Bertelsmann AG, concerning validity of U.S. Patents 5,191,573 and 5,966,440 for distribution of digital audio via telecommunications lines. Case settled. Contact: Steven M. Hayes, Esq., Parcher, Hayes & Snyder, 500 Fifth Avenue, New York, NY 10110.

Freemarkets, Inc. v. B2eMarkets, Inc., C.A. 02-162-SLR (D. Del. 2002). Served as an expert witness for plaintiff concerning infringement of U.S. patents 6,216,114 and 6,223,167, concerning methods of conducting electronic auctions. Case settled two weeks after expert attended a demonstration of the accused product. Contact: D. Michael Underhill, Esq., Boies, Schiller & Flexner, LLP, Washington, DC.

Lifecast.com, Inc. v. ClubCorp, Inc., AAA Case No. 71Y1170076301 (Dallas, TX). Served as an expert witness for respondent in a case alleging copyright infringement of Internet websites. Testified at arbitration. Result: Complainant's claims denied; award for respondent on counterclaims and for attorney's fees. Contact: Bill Whitehill, Esq., Gardere Wynne Sewell LLP, 1601 Elm St., Dallas, TX 75201.

IP Innovation LLC v. Thomson Learning, Inc. et al., Case H-02-2031 (S.D. Tex. 2002). Served as a expert for defendant The Princeton Review, Inc. concerning alleged infringement of U.S. Patent 4,877,404 relating to online delivery of educational courses. Summary judgment of non-infringement obtained for defendant after favorable Markman proceeding. Contact: Peter Vogel, Esq., Gardere Wynne Sewell LLP, 1601 Elm St., Dallas, TX 75201.

Starpay.com LLC et al. v. Visa International Service Association et al., Case 3-03-CV-976-L (N.D. Tex. 2003). Served as an expert for defendant Visa concerning alleged infringement of U.S. Patent 5,903,878 relating to online authentication of credit card customers. Dr. Shamos provided the court with a Markman tutorial in 2004 and a non-infringement and invalidity declaration in 2008. Case settled in February 2008. Contact: Stanley Young, Esq., Covington & Burling LLP, 333 Twin Dolphin Drive, Suite 700, Redwood Shores, CA 94065.

Safeclick LLC v. Visa International Service Association et al., Case C-03-5865 (N.D. Cal. 2003). Served as an expert for defendant Visa concerning alleged infringement of U.S. Patent 5,793,028 relating to online authentication of credit card customers. Summary judgment of noninfringement granted for Visa based on expert reports, affirmed after appeal to the Federal Circuit. Contact: Stanley Young, Esq., Covington & Burling LLP, 333 Twin Dolphin Drive, Suite 700, Redwood Shores, CA 94065.

Wells Fargo Bank Minnesota, NA et al. v. UBS Warburg Real Estate Securities, Inc., Case 02-2849 (192d Judicial District, Dallas Cty., Tex, 2002) and *LaSalle Bank, NA et al. v. UBS Warburg Real Estate Securities, Inc.*, Case 02-2899-G (134th Judicial District, Dallas Cty., Tex, 2002). Served as an expert for defendant UBS Warburg in an electronic discovery matter involving a case of first impression regarding Texas Discovery Rule 196.4 allocating costs of discovery of electronic records. Status: pending. Contact: Dawn Estes, Esq., Gardere Wynne Sewell LLP, 1601 Elm St., Dallas, TX 75201.

American Association of People with Disabilities et al. v. Shelley et al., Case No. CV04-1526 FMC (PJWx) (C. D. Calif., 2004). Served as an expert for plaintiff AAPD, which has brought a claim against the California Secretary of State that requiring DRE voting machines to be equipped with audit trails violates the rights of disabled persons. Plaintiffs' application for TRO and preliminary injunction denied. Contact: John McDermott, Esq., Howrey LLP, 550 South Hope St., Suite 1100, Los Angeles, CA 90071.

Paul Ware v. Target Corp., CA 4:03-CV-0243-HLM (N.D. Ga., 2003). Served as an expert for defendant Target Corp., a large retailer, in a case involving U.S. patent 4,707,592, claiming a method of conducting credit card sales. Case settled during Markman preparations. Contact: Thomas Burke, Esq., Ropes & Gray LLP, 1211 Ave. of the Americas, New York, NY 10036.

Viad Corp., v. C. Alan Cordial et al., No. 03-1408 (W.D. Pa., filed 2003). Served as an expert for defendants in an action alleging misappropriation of trade secrets relating to software for automating certain aspects of the exhibit booth and trade show

industries. Status: case settled immediately before trial, after plaintiff's unsuccessful Daubert challenge of Dr. Shamos. Contact: Barbara Scheib, Esq., Cohen & Grigsby, P.C., 11 Stanwix Street, Pittsburgh, PA 15222.

Schade et al. v. Maryland State Bd. of Elections et al., Case No. Co497297 (Cir. Ct. Anne Arundel Cty. Md., 2004). Serving as an expert for defendants in a case challenging the decision of the Board of Elections not to decertify Diebold AccuVote system. Result: Plaintiff's motion for preliminary injunction denied, upheld on appeal. Judge Manck's opinion cites Dr. Shamos' testimony as follows: "the court finds Dr. Shamos, Defendants' expert, to be the true voice of reason and the most credible expert in this matter." The denial of preliminary injunction was upheld by the Maryland Court of Appeals, which commented extensively on Dr. Shamos' testimony in its opinion. Remainder of case is pending. Contact: Michael Berman, Esq., (formerly Maryland Deputy Attorney General), Rifkin, Livingston, Levitan & Silver, LLC.

Wexler et al. v. Lepore et al., Case No. 04-80216 (CIV-COHN) (S.D. Fla. 2004) . Served as an expert for defendants, various Florida election supervisors against claim by U.S. Congressman Robert Wexler that use of DRE voting machines without paper audit trails violates the equal protection clause of the U.S. Constitution. Dr. Shamos testified on Oct. 19, 2004. The trial judge rendered judgment in favor of defendants on Oct. 25. Contact: Jason Vail, Esq., Assistant Attorney General, Department of Legal Affairs, The Capitol, Tallahassee, FL 32399-1050. Opinion.

Siemens Information and Communication Networks, Inc. v. Inter-Commercial Business Systems, Inc., Civil Action 3-03CV2171-L (N.D. Tex. 2004). Served as an expert for defendant against claim of copyright infringement based on reverse-engineered firmware resident in telephone switching systems. Status: case settled shortly after the submission of Dr. Shamos's rebuttal report on non-infringement. Contact: Bill Whitehill, Esq., Gardere Wynne Sewell LLP, 1601 Elm St., Dallas, TX 75201.

Soverain Software LLC v. Amazon.com, Inc., C.A. No. 6:04-CV-14 (E.D. Tex. 2004). Served as an expert for plaintiff regarding asserted patents

5,708,780, 5,715,314 and 5,909,492, relating to the shopping cart paradigm of electronic commerce. Status: settled in Sept. 2005 with Amazon paying \$40 million to Sovereign and taking a license under the patents in suit. Contact: Thomas L. Giannetti, Esq., Jones Day, 222 E. 41st St., New York, NY 10017.

CollegeNET, Inc. v. The Princeton Review, Inc., Case '051205KI (D. Ore. 2005). Served as a expert for defendant The Princeton Review, Inc. concerning alleged infringement of U.S. Patent 6,460,042 relating to online delivery of educational courses. Case settled in December 2007. Contact: Peter Vogel, Esq., Gardere Wynne Sewell LLP, 1601 Elm St., Dallas, TX 75201.

CombineNet, Inc. v. Verticalnet, Inc., GD 05-018911 (Ct. Common Pleas, Allegheny Cty., PA). Served as an expert for plaintiff in an action for trade secret misappropriation relating to a system for conducting electronic auctions. Plaintiff won in arbitration. Contact: Mark Knedeisen, Esq., Kirkpatrick & Lockhart Preston Gates Ellis LLP, 535 Smithfield Street, Pittsburgh, PA 15222-2312.

RealSource, Inc. v. Best Buy Co., Inc. et al., No. A04-CA-771-LY (W.D. Tex.). Served as an expert for defendant Lowe's Companies, Inc., against a claim of infringement of U.S. patent 5,732,136 relating to validation of point-of-sale debit card transactions. Provided a tutorial to the Court during Markman proceedings concerning debit card technology. Defendants won summary judgment of non-infringement, affirmed by the Federal Circuit. Defendants Lowe's settled and was not involved in the appeal. Contact: Michael S. Connor, Esq., Alston & Bird LLP, Bank of America Plaza, 101 South Tryon St, Suite 4000, Charlotte, NC 28280-4000.

DE Technologies, Inc. v. Dell, Inc. et al., No. 7:04-CV-00628 (W.D. Va.). Served as an expert for plaintiff DE Technologies, Inc., asserting a claim of infringement of U.S. patents 6,460,020 and 6,845,364, relating to a system for implementing international sales transactions. Case settled after and adverse summary judgment. However, the Court used Dr. Shamos' testimony in its opinion. Contact: David Marder, Esq., Robins Kaplan Miller & Ciresi LLP, 800 Boylston Street, 25th Floor, Boston, MA 02199.

Eaton Power Quality Corp. v. J.T. Packard & Associates, No. 05 C 3545 (N.D. Ill. 2005). Served as expert for plaintiff in a claim of software copyright infringement involving a system for configuring industrial uninterruptible power supplies. Case settled in early 2007. Contact: Keith Schoeneberger, Esq., Dewey & LeBoeuf, Suite 1175, 180 North Stetson Ave., Chicago, IL 60601-6783.

Taylor et al. v. Onorato et al., CA 06-481 (W.D. Pa 2006). Served as an expert for Commonwealth of Pennsylvania defendants in an action seeking to enjoin the use of electronic voting machines in Allegheny County, PA. Dr. Shamos testified at length in a preliminary injunction hearing held April 25-27, 2006 before Judge Lancaster. The injunction was denied on April 28. Suit was subsequently dropped by plaintiffs. Contact: Mark Aronchick, Esq., Hangley Aronchick Segal & Pudlin, One Logan Square, 18th & Cherry Streets, 27th Floor, Philadelphia, PA 19103.

FedEx Ground Package System, Inc. v. Applications International Corp., CA No. 03-1512 (W.D. Pa.). Serving as an expert for defendant counterclaiming for copyright infringement and trade secret misappropriation relating to software for maintaining occupational health and safety records. Case is pending. Contact: Ronald Hicks, Esq., Meyer, Unkovic & Scott LLP, 1300 Oliver Bldg., Pittsburgh, PA 15222.

NetMoneyIN, Inc. v. Verisign, Inc. et al., Cv-01-441-TUC-RCC (D. Ariz.). Served as an expert for defendants Bank of America Merchant Services, Inc. and Wells Fargo Bank, N.A., who are accused of infringing claim 23 of U.S. patent 5,822,737, relating to an electronic payment system. Wells Fargo and Bank of America have settled. Contact: Robert Smith, Esq., Kirkpatrick & Lockhart Preston Gates Ellis LLP, State Street Financial Center, One Lincoln Street, Boston, Massachusetts 02111-2950.

Contois Music Technology, LLC v. Apple Computer, Inc., 2:05-CV-163 (D. Vermont, filed Feb. 13, 2006). Served as an expert for plaintiff in an action alleging that the Apple iTunes software infringed U.S. patent 5,864,868, relating to a method for selecting music from an electronic catalog. Case settled after a favorable Markman order. Contact: John Rabena, Esq., Sughrue Mion, PLLC, 2100 Pennsylvania

Avenue, NW, Suite 800, Washington, DC 20037-3213.

Banfield et al. v. Cortes, 442 MD 2006 (PA Cmwlth. Ct.). Serving as an expert for defendant Secretary of the Commonwealth of Pennsylvania in an action to compel the decertification of all electronic voting machines in Pennsylvania. Case is pending. In February 2008 Defendant successfully repelled an emergency motion for preliminary injunction. Contact: Alan Promer, Esq., Hangley Aronchick Segal & Pudlin, One Logan Square, 18th & Cherry Streets, 27th Floor, Philadelphia, PA 19103.

Remote Inventory Systems, Inc. v. WESCO Distribution, Inc., AAA Case No. 55 171 00493 05 (Pittsburgh, PA). Served as an expert for respondent in a case alleging misappropriation of trade secrets in a computerized inventory system. Contact: Kirsten Rydstrom, Esq., Reed Smith LLP, 435 Sixth Ave., Pittsburgh, PA 15219.

SyncSort, Inc. v. Innovative Routines International, Inc., Civil Action No. 04-3623 (WHW) (D. New Jersey). Serving as an expert witness for defendant in an action alleging misappropriation of trade secrets embodied in plaintiff's Unix sorting software. Case is pending. Contact: David R. Fine, Esq., Kirkpatrick & Lockhart Preston Gates Ellis LLP, 17 N. Second Street, 18th Floor, Harrisburg, PA 17101-1507.

Digital Impact, Inc. v. Bigfoot Interactive, Inc., Civil Action C05 00636 (CW) (N.D. Cal.). Served as an expert witness for defendant in an action alleging infringement of U.S. Patent 6,449,634, relating to determining which file formats can be processed by an email client. Result: defendant obtained summary judgment of non-infringement, upheld by the Federal Circuit. Contact: Arthur Dresner, Esq., Duane Morris LLP, 1540 Broadway, New York, NY 10036.

Prism Technologies LLC v. Verisign, Inc. et al., CA 05-214-JJF (D. Del.). Served as an expert for plaintiff in an action alleging infringement of U.S. Patent 6,516,416, relating to use of a hardware key for authentication over networks. Defendants prevailed on summary judgment of non-infringement, which was upheld on appeal. Contact: Robins Kaplan Miller & Ciresi LLP.

AdvanceMe, Inc. v. Rapidpay LLC et al., Civil Action 6:05-cv-424 LED (E.D. Tex., Tyler Division). Served as an expert witness for plaintiff in an action alleging infringement of U.S. Patent 6,941,281, relating to an automated payment system for dividing credit card proceeds between a merchant and another party. Testified at a bench trial in July 2007 before Judge Davis, who held the patent infringed but invalid for obviousness. Contact: Ronald S. Lemieux, Esq., Paul, Hastings, Janofsky & Walker LLP, Five Palo Alto Sq., Palo Alto, CA 94306.

IBM Corp. v. Amazon.com, Inc., CA 9:06-CV-242-RHC (E.D. Tex., Lufkin Div.) and *IBM Corp. v. Amazon.com, Inc.*, CA 6:06-CV-452-LED (E.D. Tex., Marshall Div.). Served as an expert for IBM in related actions alleging infringement of U.S. Patents 5,319,542, 5,442,771, 5,446,891, 5,796,967 and 7,072,849, all concerning methods of conducting electronic transactions, and a counterclaim for infringement of U.S. Patent 5,826,258, concerning a method for querying semistructured data. Case settled early in discovery when the parties cross-licensed each other's patents. Contact: Mark Ziegelbein, Esq., Jones Day, 2727 North Harwood Street, Dallas, TX 75201-1515.

The MathWorks, Inc. v. COMSOL AB et al., CA 6:06-CV-334 (E.D. Tex., Tyler Division). Served as an expert for plaintiff The MathWorks, providers of the mathematical software system MATLAB, in an action alleging copyright infringement and infringement of U.S. Patents 7,051,338 and 7,181,745 concerning methods for invoking object methods from external environments. After trial, the case settled with defendant admitting infringement, paying \$12,000,000 in damages and waiving appeal rights. Contact: Krista Schwartz, Esq., Jones Day, 77 W. Wacker Dr., Chicago, IL 60601-1692.

Avante Int'l. Technology Corp. v. Diebold Election Systems et al., Case 4:06-CV-0978 TCM (E.D. Mo., Eastern Division). Served as an expert for defendants Sequoia Voting Systems and Premier Election Systems in an action alleging infringement of U.S. Patents 6,892,944, 7,036,730 and 7,077,313 concerning electronic voting technology. Dr. Shamos testified at a 5-day trial in February 2009. Result: The jury found Plaintiff's asserted claims invalid as anticipated and obvious. Contact: Peter Ewald, Esq., Oliff & Berridge, PLC, 277 South Washington Street,

Suite 500, Alexandria, VA 22314.

Netcraft Corp. v. eBay, Inc. and PayPal, Inc., Case 3:07-cv:00254-bbc (W.D. Wisc. 2007). Served as an expert for defendants in an action alleging infringement of U.S. Patents 6,351,739 and 6,976,008 concerning methods of billing for ecommerce transactions over the Internet. Defendants were granted summary judgment of non-infringement on Dec, 10, 2007, upheld on appeal. Contact: Kenneth Weatherwax, Esq., Irell & Manella LLP, 180 Avenue of the Stars, Los Angeles, CA 90067.

ACLU of Ohio et al. v. Brunner et al., Case 1:09 CV 0145 (N.D. Ohio 2008). Served as an expert witness in an action alleging that the use of central count optical scan voting should not be permitted in Cuyahoga County, as had been ordered by the county board of elections. A preliminary injunction was denied in February 2008. The case became moot and was dismissed in May 2008 when the Ohio Legislature granted by statute the relief requested by plaintiff, prohibiting the use of central count opscan in Cuyahoga County. Contact: Meredith Bell-Platts, Esq., ACLU Voting Rights Project, 2600 Marquis One Tower, Atlanta, GA 30303.

Ariba, Inc. v. Emptoris, Inc., Civil Action 9:07-CV-90-RHC (E.D. Texas 2007). Served as an expert for Ariba in an action alleging infringement of U.S. Patents 6,216,114 and 6,499,018, relating to the conduct of electronic auctions. Dr. Shamos testified in a jury trial on infringement and validity. Result: verdict finding all asserted claims valid and willfully infringed. Contact: Robert Fram, Esq., Covington & Burling LLP, One Front St., San Francisco, CA 94111.

EpicRealm Licensing, LP v. Autoflex Leasing Inc. et al., CA 5:07-CV-125 (E.D. Texas 2005). Served as an expert for defendant Herbalife International of America, Inc. in an action alleging infringement of U.S. patents 5,894,554 and 6,415,335, relating to a system for managing generation of dynamic Internet web pages. All defendants have settled. See also the Oracle case below. Contact: Ognian Shentov, Esq., Jones Day, 222 E. 41st St., New York, NY 10017. Also served as an expert for defendant FriendFinder in a separate trial in this action. After a jury trial before Judge Folsom, the patents were found valid and infringed, but the jury awarded only \$1.1M, the smallest amount testified to by defendant's damages

expert. Contact: Michael J. Sacksteder, Esq.,
Fenwick & West LLP, 555 California St., San
Francisco, CA 94104.

Oracle Corporation v. EpicRealm Licensing, LP, CA
2-06-414 (D. Del. 2006). Served as an expert for
Oracle in a declaratory judgment alleging invalidity
of U.S. patents 5,894,554 and 6,415,335, relating to a
system for managing generation of dynamic Internet
web pages. The patents are the same as those in the
EpicRealm case, above. Oracle obtained summary
judgment of non-infringement, now on appeal to the
Federal Circuit. Contact: Theodore Herhold, Esq.,
Townsend and Townsend and Crew, LLP, 379 Lytton
Ave., Palo Alto. CA 94301.

Saulic v. Symantec Corporation et al., Case No. SA
CV 07-610 AHS (C.D. Cal., Santa Ana Division,
2007). Served as an expert for defendant Symantec
in a removal action alleging violation of California
Civil Code §1747.8, relating to the collection of
personal identification information in connection
with credit card transactions. Contact: Chad Fuller,
Esq., Foley & Lardner LLP, 11250 El Camino Real,
Suite 200, San Diego, CA 92130.

Gusciora et al. v. McGreevey et al. (now *Gusciora v.*
Corzine), Docket No. MER-L-2691-04 (N.J. Super.,
Mercer County). Serving as an expert for defendants,
including the Governor and Attorney General of New
Jersey, in a case alleging that the state's AVC
Advantage voting machines are unconstitutionally
insecure. A bench trial was held from January-May,
2009 before Judge Linda Feinberg. Case is pending.
Contact: Leslie Gore, Esq., Asst. Atty. Gen'l., 25
Market Street, P.O. Box 112, Trenton, NJ 08625.

MOAEC, Inc. v. Pandora Media, Inc. et al., Case No.
07-cv-654-bbc (W.D. Wisc.). Served as an expert for
plaintiff in a case alleging infringement of U.S.
Patents 5,969,283, 6,232,539, 6,953,886 and
7,205,471, relating to systems for organizing and
retrieving digital music. Two defendants obtained
summary judgment of noninfringement; the
remaining defendant settled. Contact: Joshua
Krumholz, Esq., Holland & Knight, LLP, 10 St. James
Avenue, 11th Floor, Boston, MA 02116.

Web.com, Inc. v. The Go Daddy Group, Inc., Case
No. CV07-01552-PHX-MHM (D. Ariz.). Served as an
expert for defendant in a case alleging infringement
of U.S. Patents 6,654,804, 6,789,103, 6,842,769 and

~~6,868,444~~, relating to methods for managing configuration of web servers and provision of Internet services. Case has settled. Contact: Richard Frenkel, Esq., Wilson Sonsini Goodrich & Rosati, 650 Page Mill Road, Palo Alto, CA 94304.

Hummel et al. v. Dynacraft BSC, Inc. et al., Case No. CV 052214 (Cal. Super. Marin Cty.). Served as an expert for defendants in an action alleging breach of contract for web hosting services. Dr. Shamos provided four hours of trial testimony. Result: verdict for the defense. Contact: Joe B. Harrison, Esq., Gardere Wynne Sewell LLP, 1601 Elm St., Suite 3000, Dallas, TX 75201.

Tegg Corp. v. Beckstrom Electric Co. et al., Civil Action No. 2:08-CV-00435-NBF (W.D. Pa.). Serving as an expert for defendants in a case alleging infringement of copyright in computer software for administering field maintenance of electrical equipment. Case is pending. Contact: Richard Kelley, Esq., Reed Smith LLP, 3110 Fairview Park Drive, Suite 1400, Falls Church, VA 22042.

Cordance Corporation v. Amazon.com, Inc., Civil Action No. 06-491-MPT (D. Del.). Serving as an expert for plaintiff in a case alleging infringement of U.S. Patents ~~5,862,525~~, ~~6,088,717~~ and ~~6,757,710~~, relating to an infrastructure for conducting online transactions. Case is pending. Contact: Robert Abrahamsen, Esq., Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210.

Anthurium Solutions, Inc. v. MedQuist, Inc. et al., Case No. 2:07-vcv-484 (DF/CE) (E.D. Texas). Served as an expert for plaintiff in a case alleging infringement of U.S. Patent ~~7,031,998~~, relating to a distributed workflow system. Case settled ten days after responsive expert reports were served. Contact: Joshua Krumholz, Esq., Holland & Knight, LLP, 10 St. James Avenue, 11th Floor, Boston, MA 02116.

Performance Pricing, Inc. v. Google, Inc. et al., Case No. 2:07-cv-432(LED) (E.D. Texas). Served as an expert for defendant Yahoo! in a case alleging infringement of U.S. Patent ~~6,978,253~~, relating to determining prices for items sold online. Case has settled as to defendant Yahoo!. Contact: Michael A. Jacobs, Esq., Morrison & Foerster LLP, 425 Market Street, San Francisco, CA 94105.

CBS Interactive, Inc. v. Etilize, Inc., Case No. C -6-

05378 (MHP) (N.D. Cal.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 6,714,933 and 7,082,426, relating to web crawling technology to aggregate product information. Defendant consented to an injunction against further infringement and the case settled. Contact: Glenn E. Westreich, Esq., Winston & Strawn, LLP, 101 California Street, San Francisco, CA 94111.

Geographic Services, Inc. v. Anthony Collelo, Case 2008-9961 (Fairfax Cty., Va.) Serving as an expert for plaintiff in a case alleging misappropriation of trade secrets involving determining and proofing geographic names as applied to maps and satellite imagery. Case is pending. Contact: Mark Wasserman, Esq., Reed Smith LLP, 3110 Fairview Park Drive, Suite 1400, Falls Church, VA 22042.

ODS Technologies, LP v. Magna Entertainment Corp, et al., CV 07-03265 DDP (D. Del.). Serving as an expert for defendants in a case alleging infringement of U.S. Patents 5,830,068, 6,004,211, 6,089,981, 6,554,709 and 7,229,354, relating to off-track wagering systems and methods for restricting wagering based on location. Case is pending. Contact: Virginia DeMarchi, Esq., Fenwick & West, LLP, 801 California Street, Mountain View, CA 94041.

Gannett Satellite Information Network, Inc. v. Office Media Network, Inc., C.A. No. 08-96-GMS (D.Del.). Serving as an expert for defendant in a case alleging infringement of U.S. Patents 6,288,688, 6,622,826, 6,981,576 and 7,270,219, relating to display of advertising information on screens in elevators. Case is pending. Contact: Steven R. Trybus, Esq., Jenner & Block LLP, 330 N. Wabash Avenue, Chicago, IL 60611.

Legislative Testimony

Testimony before the Texas Legislature concerning electronic voting, Austin, Texas, 1987. Result: passage of the Texas Electronic Voting Law.

Invited testimony before the British House of Lords, Subcommittee B of the European Union Committee, April 20, 2000. Subject: European regulation of eCommerce.

Testimony before the Pennsylvania Legislature State

Government Committee concerning electronic voting, Philadelphia, March 10, 2004.

Testimony before the United States Commission on Civil Rights concerning electronic voting, Washington, DC, April 9, 2004.

Testimony before the U.S. House of Representatives Committee on Science concerning voting system certification, Washington, DC, June 24, 2004.

Testimony before the U.S. House of Representatives Committee on House Administration concerning voting system security, Washington, DC, July 7, 2004.

Testimony before the U.S. House of Representatives Committee on Government Reform concerning electronic voting technology, Washington, DC, July 20, 2004.

Testimony on DREs and paper trails before the Virginia Legislature Study Commission on Voting System Certification and Security, Richmond, VA, August 16, 2004.

Testimony before the Election Assistance Commission, Technical Guidelines Development Committee, Subcommittee on Computer Security and Transparency, Gaithersburg, MD, Sept. 20, 2004.

Testimony before the House Ways and Means Committee of the Maryland General Assembly on voting machine paper trails, Annapolis, MD, December 7, 2004.

Testimony before the U.S. House of Representatives Committee on House Administration concerning paper trails, Washington, DC, September 28, 2006.

Testimony before the U.S. Election Assistance Commission concerning the Voting System Testing and Certification Program, Washington, DC, October 26, 2006.

Testimony before the Georgia State Board of Elections, Powder Springs, GA, December 21, 2007.

Testimony before the Maryland House of Delegates Ways and Means Committee, Annapolis, MD, January 18, 2007.

Testimony before the U.S. Senate Committee on

Rules and Administration on the Ballot Integrity Act of 2007, Washington, DC, July 25, 2007.

Arbitration

Dr. Shamos has served as an arbitrator in computer-related disputes for the American Arbitration Association.

Electronic Voting

Dr. Shamos has served as an examiner of electronic voting systems and consultant on electronic voting.

Consultant to the Pennsylvania Secretary of the Commonwealth (2004-).

Member, Sarasota Source Code Audit Task Force, Florida Secretary of State (2006-2007)

Consultant to the Massachusetts Secretary of the Commonwealth (2006).

Project SERVE Security Peer Review Group (2003).

Attorney General's Designee for electronic voting examinations, State of Texas (1987-2000).

Attorney for Counsel to the Secretary of the Commonwealth, Commonwealth of Pennsylvania. (1998-2000); Statutory Examiner for electronic voting, Commonwealth of Pennsylvania (1980-1996).

Consultant to Montgomery County, Pennsylvania (1996).

Consultant to the Secretary of State of Nevada (1996).

Consultant to the Delaware Legislature (1989).

Business Experience

President, Unus, Inc., database publishing software (formerly Unilogic, Ltd.) (1990-1992)

President, Lexeme Corporation (1984-87), software language translation products.

Managing Partner, Shamos and Tchen (1978-82), computer consulting firm.

Supervisory Programmer, National Cancer Institute (1970-72), while a commissioned officer in the

United States Public Health Service (O-3).

Associate Engineer, IBM Corporation (1968-70),
design of manufacturing information systems.

Consulting

Morgan Stanley Dean Witter (2000-2002). Contact: Stephanie Homes.

McKinsey & Co. (1999-2001). Contact: Will Draper
(BTO Stamford)

Bell Atlantic Corporation (1999-). Contact: John Martin.

LG-CNS, South Korea (2002-). Project to automate
the Korean court system.

Directorships

Unilogic, Ltd. (1979-87) (later Unus, Inc. d/b/a
Cygnet Publishing Technologies, 1987-). Database
publishing software.

The Billiard Archive (1983-). Historical nonprofit
foundation.

Lexeme Corporation (1984-1987). Computer source
language translation.

Insurance Technology Corporation (1992-1995). IT
consulting for the insurance industry.

Personal Data

Date of birth: April 21, 1947.

Married to Julie Shamos (formerly Julie Van Allen),
August 12, 1973.

Children: Josselyn (born May 20, 1982), Alexander
(born August 3, 1984).

Military Status: Veteran (Commissioned Officer, U.S.
Public Health Service, 1970-72).

Health: excellent

Contact Information

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Home Telephone: 412-681-8398
Home Fax: 412-681-8916

Publications

SCIENCE

Books

1. *Computational Geometry: An Introduction*, with F. P. Preparata. Springer-Verlag (1985, revised ed., 1991), 390 pp. ISBN 0387961313. According to [Citeseer](#), this is the 28th most frequently cited work in computer science.
2. *Vyichislitel'naya Geometria: Vyedyeniye*. Russian translation of "Computational Geometry: An Introduction." Moscow: Mir Publishers (1989). ISBN 5030010416.
3. *Keisan kikagaku nyumon*. Japanese translated by T. Asano and T. Asano of *Computational Geometry: An Introduction*, with F. P. Preparata. Soken Shuppan (Jul. 1992). ISBN 4795263213.
4. *Handbook of Academic Titles*. 198 pp. (Nov. 2002). An encyclopedia of various academic designations used at over 1000 colleges and universities in the United States.
5. *Geometria obliczeniowa. Wprowadzenie*. Polish translation of "Computational Geometry: An Introduction." Warsaw: Helion (2003) 392 pp. ISBN 83-7361-098-7.

Book Chapters

1. "Privacy and Public Records," chapter 16 in *Personal Information Management*, Jones & Teevan, eds., Univ. of Washington Press (2007), ISBN 978-0-295-98737-8.

Articles

1. "On the Piezoelectric Effect in Bone," with M. H. Shamos and L. S. Lavine. *Nature* **197**:81 (1963).
2. "An Absorber Theory of Acoustic Radiation," with M. A. Tavel. *Journal of the Acoustical Society of America* **54**:46-49 (1973).

3. "Problems in Computational Geometry." Unpublished book manuscript (1974, revised 1977). Distributed in photocopy.
4. "Geometric Complexity." *Proceedings of the Seventh Annual ACM Symposium on Automata and Theory of Computation* (May 1975) 224–233.
5. "Closest-point Problems," with D. J. Hoey. *Proceedings of the Sixteenth IEEE Symposium on Foundations of Computer Science* (Oct. 1975) 151–162.
6. "Divide and Conquer in Multidimensional Space," with J. L. Bentley. *Proceedings of the Eighth Annual ACM Symposium on Automata and Theory of Computing* (May 1976) 220–230.
7. "Geometric Intersection Problems," with D. J. Hoey. *Proceedings of the Seventeenth Annual IEEE Symposium on Foundations of Computer Science* (Oct. 1976) 208–215.
8. "Lower Bounds from Complex Function Theory," with G. Yuval. *Proceedings of the Seventeenth Annual IEEE Symposium on Foundations of Computer Science* (Oct. 1976) 268–273.
9. "Geometry and Statistics: Problems at the Interface." In *Algorithms and Complexity: New Directions and Recent Results*, J. F. Traub, ed., Academic Press (1976) 251–280.
10. "Divide and Conquer for Linear Expected Time," with J. L. Bentley. *Information Processing Letters* 7 (1977) 87–91.
11. "A Problem in Multivariate Statistics: Algorithm, Data Structure, and Applications," with J. L. Bentley. *Proceedings of the Fifteenth Allerton Conference on Communications, Control and Computers* (Sep. 1977) 193–201.
12. "Optimal Algorithms for Structuring Geographic Data," with J. L. Bentley. *Proceedings of the Harvard Conference on Topological Data Structures for Geographic Information Systems* (Oct. 1977) 43–51.
13. "Computational Geometry." Ph.D. Thesis, Yale University (1978). University Microfilms, Ann Arbor, MI.
14. "On Time and Space," with A. R. Meyer. In *Perspectives on Computer Science*, A. K. Jones, ed. Academic Press (1978).
15. *Combinatorics on Graphs I: Graph Polynomials*. Unpublished book manuscript (1978).
16. "Robust Picture Processing Operators and Their Implementation as Circuits." *Proceedings of the Fall 1978 Workshop on Image Processing*, Carnegie Mellon University (1978).

17. "A practical system for source language translation," with T. R. Kueny and P. L. Lehman. *Proceedings of the National Conf. on Software Reuseability and Maintainability*, pp. B-1 – B-12, Washington, DC (Sep. 1986).

18. "The Early Years of Computational Geometry – A Personal Memoir." *Advances in Discrete and Computational Geometry* (B. Chazelle, J. E. Goodman, and R. Pollack, eds.), *Contemporary Mathematics*, Amer. Math. Soc., Providence (1998).

DIGITAL LIBRARIES

Articles

1. "Machines as readers: a solution to the copyright problem." J. Zhejiang Univ. Science 6A, 11, pp. 1179-1187 (Nov. 2005).

Reports

1. "Japanese Digital Information Policy, Intellectual Property and Economics," in "Digital Information Organization in Japan," International Technology Research Institute (1998).

ELECTRONIC VOTING

Articles

1. "Voting System Certification — An Examiner's View." Invited paper presented at the Election Center Conference, Reno, Nevada (Sep. 1989).

2. "Electronic Voting — Evaluating the Threat." Proc. Third ACM Conf. on Computers, Freedom & Privacy, San Francisco, CA (Mar. 1993).

3. "Paper v. Electronic Voting Records — An Assessment." Proc. 14th ACM Conf. on Computers, Freedom & Privacy, Berkeley, CA (Apr. 2004).

4. "Evaluation of Voting Systems," with P.L. Vora, B. Adida, R. Bucholz, D. Chaum, D. Dill, D. Jefferson, D. Jones, W. Lattin, A. Rubin and M. Young, Commun. ACM 47(11):144 (2004).

5. "Voting as an Engineering Problem." *The Bridge* (publication of the National Academy of Engineering), Summer 2007, pp. 35-39.

BILLIARDS

Books

1. Pool. New York: Mallard Press division of Bantam-

Doubleday-Dell Promotional Book Company (Aug. 1991). 128 pp. ISBN 0-7924-5310-7.

2. *Le billard et le billard américain*. Paris: Minerva, 1992, reprinted 1997. 128 pp. Translation by Jean-Yves Prate of the author's American book, *Pool*. ISBN 2-8307-0160-7 (1992), 2-8814-3135-6 (1997).

3. *The Illustrated Encyclopedia of Billiards*. New York: Lyons & Burford (1993). 310 pp. ISBN 1-55821-219-1.

4. *Pool Snooker Carambola*. Padua: Facto Edizioni (1993). 128 pp. Italian translation of *Pool*. Translated by Elisabetta Bezzon. ISBN 88-85860-20-6. The only English-language billiard book ever published in Italian.

5. *Pool*. New York: Friedman/Fairfax (Jun. 1994). 128 pp. ISBN 1-56799-061-4. Paperback edition of the author's 1991 *Pool*.

6. *Shooting Pool: The People, the Passion, the Pulse of the Game*, with photographs by George Bennett. New York: Artisan (Jun. 1998). 144 pp. ISBN 1-885183-95-X. A Book-of-the-Month Club bonus selection (Fall, 1998).

7. *Setting the Stage for Fifty Years*. Coralville, IA: Billiard Congress of America (Jun. 1998). 88 pp. A history of the Billiard Congress of America.

8. *The New Illustrated Encyclopedia of Billiards*. New York: Lyons Press (1999). 320 pp. ISBN 1-55821-797-5. An expanded and revised edition of *The Illustrated Encyclopedia of Billiards*.

9. *The Complete Book of Billiards*. New York: Gramercy Books (2000). 306 pp. ISBN 0-517-20869-5. Reissue of author's 1993 *The Illustrated Encyclopedia of Billiards*.

In Preparation

SCIENCE

Books

1. *A Catalog of the Real Numbers*. A list, patterned after Sloane & Plouffe, *The Encyclopedia of Integer Sequences*, Academic Press (1995). Over 8000 interesting real numbers arranging in lexical order by decimal expansion, with accompanying formulas.

2. *Handbook of Academic Titles*.

Articles

1. *Overcounting Functions.* A systematic method of transforming certain multiple summations into single summations, with new number-theoretic results.

2. *Property Enumerators and a Partial Sum Theorem.* A new result allowing rapid symbolic evaluation of certain types of double summations.

LAW

Books

1. *A Dictionary of American Intellectual Property.*

2. *Electronic Voting Glossary.*

Invited Talks

ELECTRONIC COMMERCE

"The U.S., Korea and the Internet Bubble." Korea International Trade Association (Seoul, July 2003).

"Electronic Judiciary Services in the United States." Address at the Supreme Court of Korea (Dec. 2004).

"eGovernment in the United States." Public address at the University of Hong Kong (Feb. 2005).

"Global SCM as a Cross-Border eCommerce Model," Korea International Trade Association, Seoul, Korea (Mar. 2007).

"Innovate or Die." Invited talk at the Verizon Leadership Meeting, Morristown, NJ (Jun. 2007).

"A Formula for Innovation." Public address at the University of Hong Kong (Feb. 2008).

SCIENCE AND LAW

"Digital Property in the 21st Century." Keynote address for the Spring Meeting of the American Intellectual Property Law Association, Pittsburgh, PA (May 2000). View [slides](#).

"Who Owns This Algorithm?" Carnegie Mellon University (Nov 1991); Microelectronics and Computer Corporation (Jan. 1992); Univ. of Texas at Austin (Jan. 1992); UCLA (Feb. 1992).

"New Computer Technology and Its Application to Worker's Compensation." Forum IV, Newport Beach, CA (Feb. 1992).

"The Office of the Future, If There Is One." 1994 IAIABC Conf., Pittsburgh, PA (Sep. 1994).

"The Fringes of Infringement." University of Texas, Austin, TX (Sep. 1995).

"The Arts and the Internet." Allegheny County Bar Association Continuing Legal Education course (June 26, 1996).

"The Universal Information Resource." Inventing the Future, Symposium in Honor of Raj Reddy's 60th Birthday, Carnegie Mellon University, Pittsburgh, PA (May 1998).

"The Universal Library." University of Texas at Austin (Sep. 1998)

"The Universal Library and Its Role in Scientific Information." Keynote address to the RNA Society symposium on Emerging Sources of RNA Information, Arlington, VA (Dec. 8, 1998).

"Digital Property in the 21st Century." Luncheon address to the American Intellectual Property Law Association, Pittsburgh, PA (May. 2000).

"The Future of eCommerce." Address to the Association for Corporate Growth, Pittsburgh, PA (Dec. 2001).

"Copyright Protection and Distance Learning." Hong Kong Intellectual Property Office (Feb. 2002).

"Surprises in Experimental Mathematics." Carnegie Mellon University Mathematics Seminar (Feb. 2002).

"The Universal Dictionary." Address at International Institute of Information Technologies (IIIT), Hyderabad, India (Jan. 2003).

"The Million Book Projects." Public address at the University of Hong Kong (Jan. 2003).

"Mathematics and the Privacy Laws." ALADDIN Workshop on Privacy in D.A.T.A., Pittsburgh, PA (Mar. 2003).

"Machines as readers: a solution to the copyright problem." 1st Int'l Conf. on Universal Digital Library, Hangzhou, China (Nov. 2005).

"University Technology Transfer: How to Fix It." Asia Conference on Technology Transfer (ACTT) 2006, Seoul, S. Korea (Mar. 2006).

"How Big a Problem is Copyright"? USAIN Conference, Cornell University, Ithaca, NY (Oct. 2006).

"Digital Ownership." 2d Intl. Conf. on Universal Digital Library, Alexandria, Egypt (Nov. 2006).

"How Did It (Computational Geometry) Start?" Keynote address at the 20th Canadian Conference on Computational Geometry, Montreal, Canada (Aug. 2008).

ELECTRONIC VOTING

"Voting System Certification — An Examiner's View." Election Center Conference, Reno, Nevada (Sep. 1989).

"Electronic Voting — Evaluating the Threat." Third Conf. on Computers, Freedom and Privacy, San Francisco, CA (Mar. 1993).

"What's Happening in Florida?" Carnegie Mellon University (Nov. 2001)."

"Electronic Voting: The Technology of Democracy." Hong Kong University (Feb. 2004).

"Theory v. Practice in Electronic Voting." DIMACS (Rutgers Univ., May 2004).

"HAVA: Are We Ready?" Panel at the League of Women Voters National Convention, Washington, DC (Jun. 2004).

"Testing Voting Machines." Panel at the American Enterprise Institute, Washington, DC (Jun. 2004).

"Electronic Voting: Promise and Peril." Talk at the Moritz College of Law, Ohio State University (Sep. 2004).

"Is e-voting ready for prime time: Legal and technical issues regarding the upcoming Presidential election." Panel at John Marshall Law School (Chicago, IL, Oct. 2004).

"Is Electronic Voting Reliable?" Talk to the Kiwanis Club of Dubuque, Iowa (Feb. 2005).

"The Top Ten Problems in Practical Electronic Voting." Int'l Workshop on Mathematics and Democracy, Ettore Majorana Centre, Erice, Sicily (Sept. 2005).

"Why Don't We Have Paper Trails in Pennsylvania?" Carnegie Mellon Univ. CyLab Seminar, Pittsburgh, PA (Jan 2006).

"Paper Trails and the Pennsylvania Certification Process." County Commissioners Association of Pennsylvania 2006 Spring Conference, Harrisburg, PA (Mar. 2006).

"The 2006 Elections: Are We Ready?" Panel at the American Enterprise Institute, Washington, DC (Sept. 2006).

"What's Right with Electronic Voting?" University Lecture

Series, Carnegie Mellon University (Oct. 12, 2006).

"What Happened in Yesterday's Election?" Center for Research on Computation and Society, Harvard University (Nov. 8, 2006).

"What Happened in Sarasota County"? Council on Government Ethics Laws, New Orleans, LA (Dec. 6, 2006).

"What Happened to 18,000 Votes? Results of the Sarasota Source Code Audit." Carnegie Mellon University (Apr. 16, 2007).

"Opscan Voting: The Good, the Bad and the Ugly." Florida State Association of Supervisors of Elections, Destin, Florida (May 24, 2007).

"Voting Machine Fraud." University of Pittsburgh (Nov. 11, 2008)